

Application No. 10/023,255

Docket No. 2001U012.US

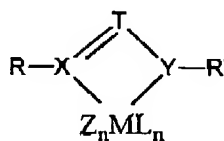
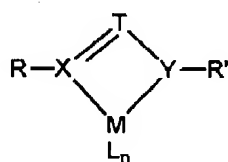
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Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A catalyst precursor composition represented by one or more:



wherein T is a bridging group containing 2 or more bridging atoms;

M is an atom selected from Groups 3-7 of the Periodic Table of the Elements,

Z is a coordination ligand;

each L is a monovalent, bivalent, or trivalent anionic ligand;

n is an integer from 1 to 6;

X is nitrogen or phosphorus;

Y is ~~a heteroatom~~ and is selected from the group consisting of nitrogen, phosphorus, oxygen, and sulfur;

R is a C<sub>2</sub> to C<sub>30</sub> straight chain alkyl group or a C<sub>2</sub> to C<sub>30</sub> branched chain alkyl group;  
and

R' is a bulky substituent that is sterically hindering with respect to Y.

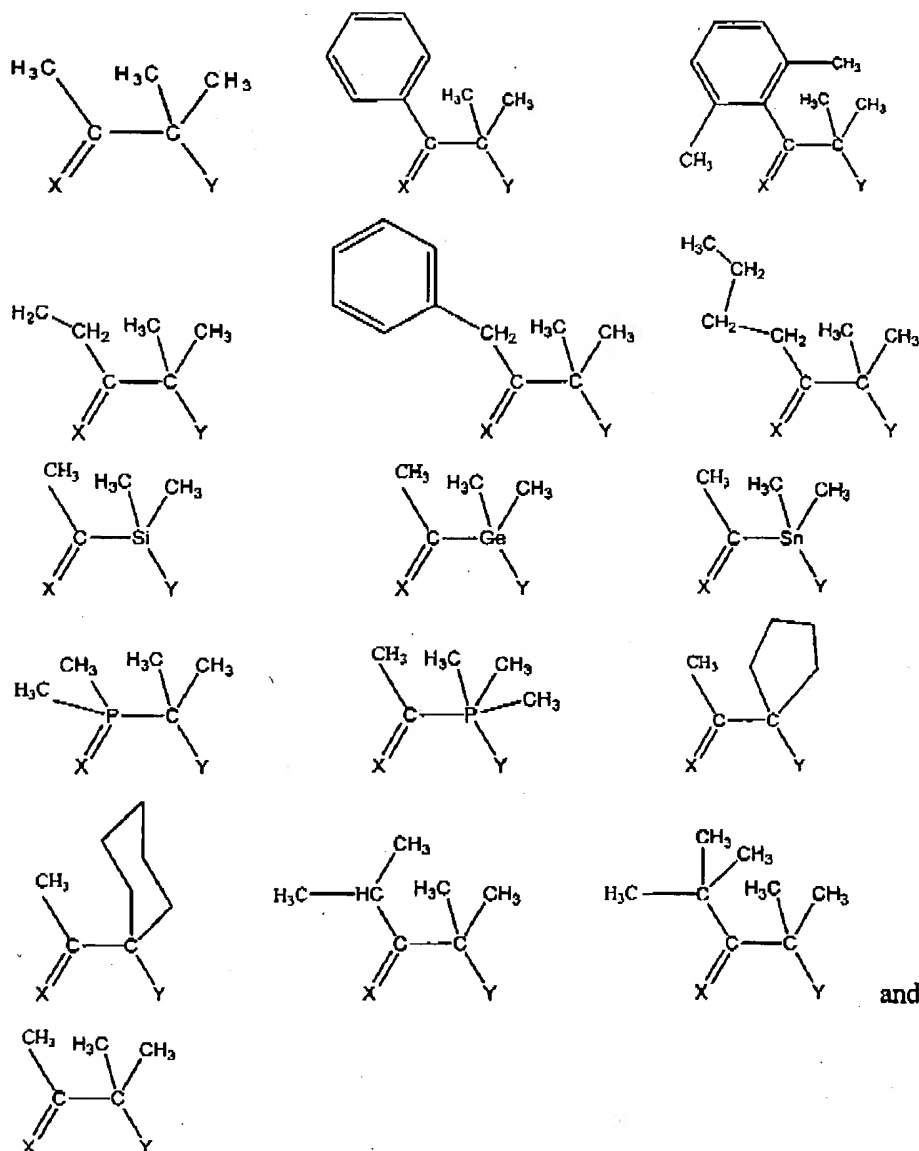
2. (Original) The catalyst precursor composition of claim 1, wherein T contains 2 or 3 bridging atoms and from 2 to 50 non-hydrogen atoms, at least one of which is a Group 14 atom.
3. (Original) The catalyst precursor composition of claim 1, wherein T contains at least two primary alkyl groups on the atom adjacent to Y.

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4. (Previously presented) The catalyst precursor composition of claim 1, wherein T contains a dimethyl group on the atom adjacent to Y.
5. (Previously presented) The catalyst precursor composition of claim 1, wherein T is selected from the group consisting of:



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wherein X and Y are provided for convenience and are not part of the bridging group.

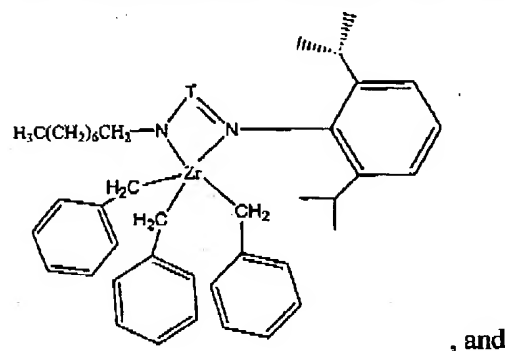
6. (Previously presented) The catalyst precursor composition of claim 1, wherein Z is selected from the group consisting of at least one of triphenylphosphine, a tris(C<sub>1</sub>-C<sub>6</sub> alkyl) phosphine, a tricycloalkyl phosphine, a diphenyl alkyl phosphine, a dialkyl phenyl phosphine, a trialkylamine, an arylamine, a substituted or unsubstituted C<sub>2</sub> to C<sub>20</sub> alkene, an ester group, a C<sub>1</sub> to C<sub>4</sub> alkoxy group, an amine group, a carboxylic acid, a di(C<sub>1</sub> to C<sub>3</sub>) alkyl ether, an  $\eta^4$ -diene, tetrahydrofuran, and a nitrile.
7. (Previously presented) The catalyst precursor composition of claim 1, wherein each L is selected from the group consisting of hydrogen and groups that comprise from 1 to 50 non-hydrogen atoms; the non-hydrogen atom containing group selected from the group consisting of halogen containing groups; alkyl; aryl; alkenyl; alkylaryl; arylalkyl; hydrocarboxy; amides, phosphides; sulfides; silylalkyls; diketones; borohydrides; and carboxylates.
8. (Previously presented) The catalyst precursor composition of claim 1, wherein each L contains from 1 to 20 non-hydrogen atoms and is selected from the group consisting of the alkyl, arylalkyl, and halogens.
9. (Previously presented) The catalyst precursor composition of claim 1, wherein n is an integer from 1 to 4.
10. (Previously presented) The catalyst precursor composition of claim 1, wherein both X and Y are nitrogen.
11. (Previously presented) The catalyst precursor composition of claim 1, wherein R is a straight chain alkyl group or a branched chain alkyl group.

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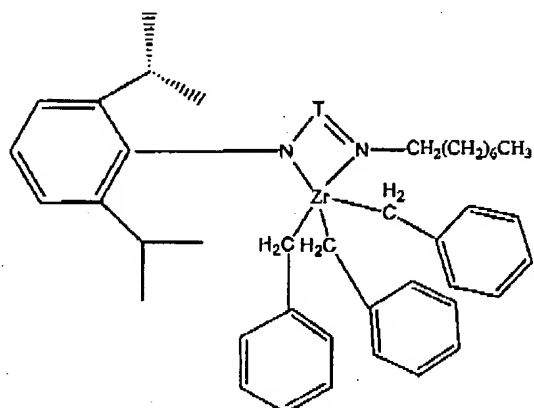
12. (Previously presented) The catalyst precursor composition of claim 11, wherein R is a C<sub>1</sub> to C<sub>10</sub> straight chain alkyl group.
13. (Previously presented) The catalyst precursor composition of claim 1, wherein R' contains from 3 to 50 non-hydrogen atoms and is selected from the group consisting of alkyl, alkenyl, cycloalkyl, heterocyclic, alkylaryl, arylalkyl, polymeric, and inorganic ring moieties.
14. (Previously presented) The catalyst precursor composition of claim 13, wherein R' contains from 4 to 20 non-hydrogen atoms.
15. (Previously presented) The catalyst precursor composition of claim 13, wherein the R' substituent has one or more of its carbon or hydrogen positions substituted with an element selected from the group consisting of Groups 14 to 17 of the Periodic Table of the Elements, other than carbon.
16. (Previously presented) The catalyst precursor composition of claim 1, having a formula selected from the group consisting of:



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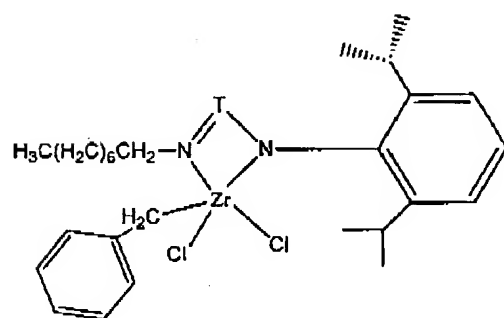
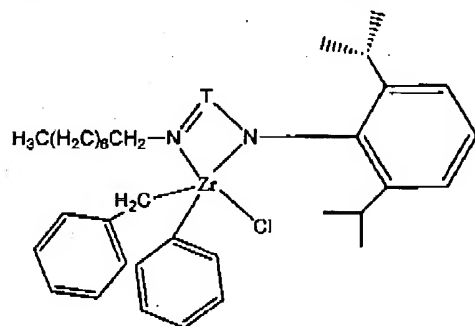
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wherein T is a bridging group containing 2 or more bridging atoms.

17. (Previously presented) The catalyst precursor composition of claim 1, which is represented by a formula selected from the group consisting of:

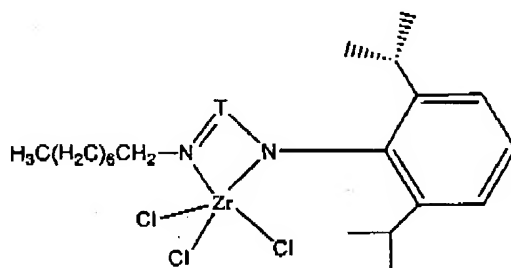


and

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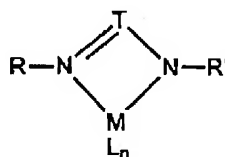


wherein T is a bridging group containing 2 or more bridging atoms.

18. (Cancelled)

19-36. (Cancelled).

37. (Currently amended) A catalyst precursor having the following general formula:



wherein T is a bridging group containing less than 10 non-hydrogen atoms, at least 2 of which are linking atoms with respect to the nitrogen atoms and wherein at least one of the bridging atoms is a carbon atom;

M is Hf or Zr;

each L is a ligand containing from about 1 to 20 non-hydrogen atoms and is selected from the group consisting of alkyl, arylalkyl alkyl halide, arylalkyl halide, and halogen;

n is an integer from 1 to 3;

R is a ~~C<sub>1</sub> to C<sub>10</sub>~~ C<sub>2</sub> to C<sub>30</sub> straight chain alkyl group; and

R' is a bulky substituent that is sterically hindering with respect to which it is bonded and contains 4 to 20 non-hydrogen atoms and is selected from the group consisting of alkyl, alkenyl, cycloalkyl, heterocyclic, alkylaryl, and arylalkyl.

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38. (Previously presented) The catalyst precursor of claim 37 wherein T contains at least two primary alkyl groups on the atom adjacent to Y.
39. (Previously presented) The catalyst precursor of claim 37 wherein T contains a dimethyl group on the atom adjacent to the nitrogen group bonded to R'.
40. (Cancelled)
41. (Cancelled)